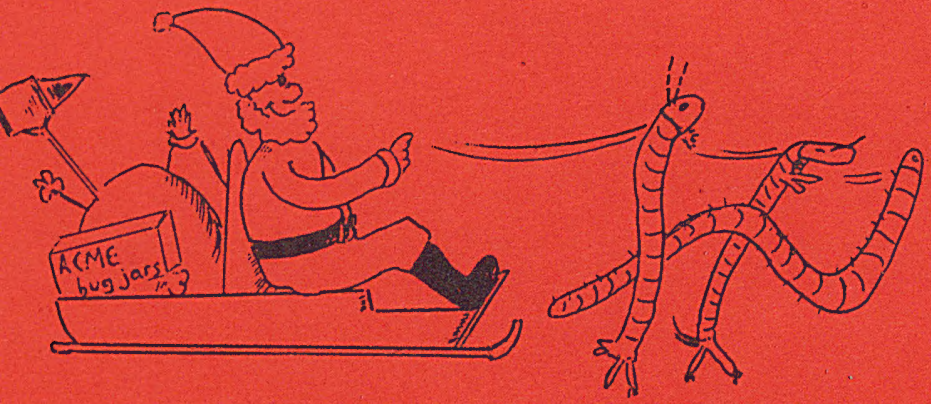
AUSTRALIAN SOCIETY FOR LIMNOLOGY INC.

NEWSLETTER

Bumper Christmas Issue



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MEMBERSHIP DETAILS

The Australian Society for Limnology Inc. (ASL) is an association of over 500 people with professional or amateur interests related to Australian inland waters. Since its inception in 1961, the society has played an important role in fostering limnology in this country. The ASL promotes liaison between limnologists in academic, government and private institutions and has a vested interest in the conservation of aquatic and related resources. Annual conferences are held near centres of limnological interest, and the programme includes scientific sessions, field excursions and social activities.

The ASL regularly produces a newsletter with notes on limnological activities, articles of general interest, book reviews and announcements of upcoming events likely to be of interest to Members.

Membership applications are welcome from any person with an interest in limnology. Five classes of subscribing membership are available:

Ordinary members	$ 30.00
Student members	$ 15.00
Life members	$ 250.00
Institutional members	$ 35.00
Sustaining members	Fees on application

Membership covers the period from 1 July to 30 June and all members receive the regular and occasional publications produced by the society. Members may also choose to receive the Australian Journal of Marine and Freshwater Research, the Australian Journal of Zoology and/or the Australian Journal of Botany at special reduced rates. The subscription of each journal is based on the calender year in which the subscription is paid.

Enquiries relating to membership should be directed to the Membership Officer:

Mrs Margaret Hart
22 Netherby Avenue
MULGRAVE VIC 3170 pH. (03) 560 4406 [FAX (03) 560 4406]

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Material for publication in the March 1994 Issue of the Newsletter should be sent to the editors (see back pages) before the end of February 1994.

Long articles should be forwarded to the editors as unformatted text, preferably on IBM-compatible discs, or as formatted text in any commonly used word processing package (Word or Word Perfect).

Cover: A beautiful piece supplied by the Chief Editor himself - AJB.

EDITORIAL

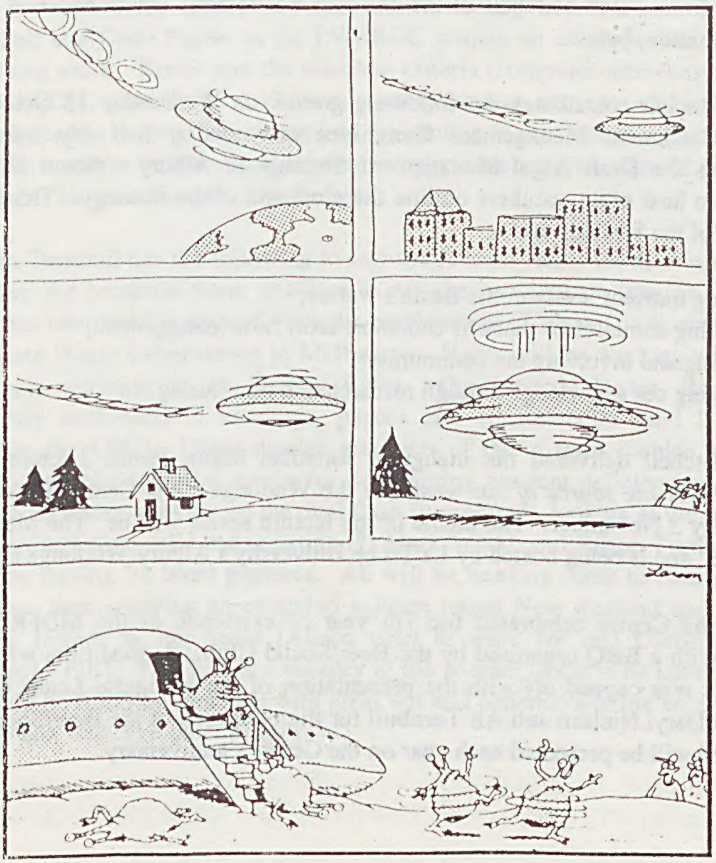
It seems appropriate to change editors just before the Christmas season - the newsletter can be viewed as a special present that will bring joy to its readers, we can blame the silly season for glitches, etc. [Up to here I got stuck, then Drs Paul Boon and Sam Lake, about to enter the Flinders Ranges (= wetland complex after some major rains - the beginning of Greenhouse and Global Change!), came and helped organize the editorial]. This is the field season, when young person's minds turn to sampling, when the celebration of Christmas [about here we argued about pagan rituals and Saturnalia], [here, we hesitated as we wanted to cater for oppressed ethnic minorities] gives way to the search for the Cutting Edge, the Scientific Breakthrough...

Basically, a major problem of southern hemisphere ecology is that the field season coincides with annual holidays, Christmas, and academic escape and recovery before the next bout of teaching. Hazards of Christmas and New Year's Eve (e.g. family violence, in-laws, etc.) inhibit sampling excellence, clear thought, creative synergism and generally reduce the capturability and attractiveness of the research mission (if you can remember it after all those Christmas beers). How do we resolve this? Hurl off the shackles of our Christian heritage. Pay more to researchers who elect to work over the break. Do Christmas in June so that the Christmas cards now have some relevance and the snow is legitimate. Cancel Christmas altogether. This contentious issue and more will be discussed at the ASL meeting on Rottnest...

Key issues for the New Year in ASL centre on (i) the formulation and adoption of a political agenda (i.e., clarifying what we really want from our politicians), (ii) the development of ASL as a "clearing house" for local expertise to guide our politicians and media, or (iii) clarifying what we really want from our Society - do we want a learned society, concerned with the professional development of scientists and research in Australia or do we enjoy the beer-swilling, happy-go-lucky laid-back informal group meeting in pleasant places and plundering the environment and thieving their friend's intellectual property (i.e. go up a peg)?

Your newsletter is only as good as the irate letters to the Editor. We would even accept flattery. We need provocative commentary (preferably anonymous) on issues relating to Australian limnology. We need suggestions for material to add to this newsletter. And Sam Lake makes a special plea for anonmyous scandal.

The Editorial Collective - Fran Sheldon, Kerri Muller, Adrienne Burns, Stuart Blanch, Marcus Cooling, Sam Wade, and Andrew Boulton, ably aided by Drs Boon and Lake.



PRATTLEBUTT, SCUMOUR & RUTTLE

NEW SOUTH WALES

The Murray-Darling Freshwater Research Centre

From: Paul Boon

Lots of things have been happening at Albury (and we won't even mention the CRC). Probably the first thing to say is that Terry Hillman has taken over the reins of power from David Mitchell as the MDFRC's Director. David Mitchell adds to this information, below.

Rhonda Sinclair contributes the following gossip: on Wednesday 13 October, the Murray Catchment Management Committee convened a half day information session on the Draft Algal Management Strategy in Albury. About 40 people attended to hear eight speakers outline the elements of the Strategy. The four key elements of the Strategy are:

a) reducing nutrient levels in the Basin's waters;
b) improving annual flow patterns and short-term flow management;
c) educating and involving the community;
d) improving our knowledge through research and monitoring.

David Mitchell delivered the inaugural Jonathan Mann Public Lecture on *The Murray River-the source of our wealth* at the Wodonga Civic Centre Theatrette on Wednesday 3 November. The theme of the lecture series will be "The Murray and its People" and is being hosted by La Trobe University's Albury-Wodonga Campus.

Staff at the Centre celebrated the 7th year of existence of the MDFRC on 26 October with a BBQ organised by the Beer/Social Club. A good time was had by all, and it was capped off with the presentation of the inaugural *Leaky Gumboot Award* to Daryl Nielsen and Ali Turnbull for the operation of the Beer/Social Club. The award will be presented each year on the Centre's anniversary.

By the time this edition goes to print, the official opening of the Cooperative Research Centre for Freshwater Ecology at Albury has been and gone (Tuesday 23 November). The opening took place during National Water Week. Senator Chris Schacht opened the Centre and guests were able to view the Laboratory and have a BBQ, followed by a 2 hour symposium on the Future of the River Murray in the afternoon.

PIB has to make an apology: the "Shock! Horror! Job!" plea for a person to join the team playing with mud and bacteria causes one of your humble correspondents much embarrassment. This position was filled on 26 July, before the previous Newsletter was much more than a glint in Leon and Tim's eyes. And filled very well it was too, by Kerrie Lee (ex Warrnambool), who has now joined Alison Mitchell and Colin Payne on the LWRRDC project on decomposition processes in billabong muds. Kerrie met the selection criteria (computer-astuteness, fondness of CH_3CH_2OH, capacity to work on a wobbly project, etc, etc) admirably, and has commenced to make great inroads into the cycling of methane in wetland sediments. What this means is that much more macrophyte-carbon gets shunted through these anaerobic bacteria than we first thought.

Alison Turnbull has the following to say: the A-team [algal team, as opposed to the B-team, the bacterial team; needless to say the zooplankton team is the Z-team - PIB] has continued to expand, with the employment of Harry Clark, previously from the State Water Laboratories in Melbourne. Harry will be working with Christine Rees on nutrients in the Darling River. Our intrepid leader, Rod Oliver, is presently knee-deep in meetings, papers and consultancies [and I said not to mention the CRC]. Other newish members of the A-team include Mark Wood, working on physiological assays for determining nutrient deficiencies; Mark Fink, jack of all trades working on the dual flash fluorometer, looking at the physiology of light limited algal cells and assisting (?) Mark Wood, and Alison Turnbull who will soon be leaving for bluer pastures. Ali will be heading south to Antarctica for the summer, then enjoying an extended sojourn round New Zealand and through the Pacific Islands in her yacht [Alison used to work for one Christopher Chase, Esquire? - PIB]. This leaves a vacancy in the A-team (soon to be advertised) which can only be filled by someone with great wit and patience and the ability to work in a shoe box with five other people.

David Mitchell has the following to say: on the 1st July, Terry Hillman took up appointment as Director of the MDFRC. David Mitchell had stood down in order to concentrate on research so that he could complete various research and writing projects prior to retiring from CSIRO in about 2 years time. He will remain on secondment from CSIRO with the MDFRC at Albury until then.

David Mitchell delivered the inaugural Jonathan Mann Lecture for La Trobe University in Wodonga on the 3rd November. The lecture was the first of a series of five annual public lectures on the River Murray and its people. David spoke on "The Murray River: the source of our wealth". He outlined the wealth derived from the Murray in ecological, cultural and economic terms and raised issues about the sustainable management of the system in relation to current human attitudes to natural resources.

David also attended the conference of the Queensland branch of the Australian Waters & Wastewaters Association at Caloundra from 12-18 December, where he was invited to read the keynote address at the beginning of the conference. He spoke on "Making the most of water resources: a multidisciplinary endeavour." This approach fitted well with the conference at which papers were received from a range of disciplines including law, biology, sociology and, of course, engineering.

David Mitchell has been involved in writing a National Strategy on Weeds. He is a member of the writing team on which he represents aquatic interests. The strategy should be completed and available early in 1994.

News from New England

Jottings from Geoff Smith

Despite the dry conditions the aquatic botany research group at UNE are keeping very busy. Congratulations go to a relieved Michelle Casanova on handing in her PhD thesis. She's quite a different person really. Despite the pressures Michelle still managed to attend the ESA annual congress and since handing in her thesis has been keeping up the pressure conducting surveys on the North Coast with tight deadlines attached. It was probably Margaret Brock's absence overseas that allowed Michelle the opportunity to get the final draft of her thesis past Margaret's desk. The busy

trip abroad included a visit to Patrick Grillas' aquatic plant projects in the Camargue region of southern France (delta of the Rhone river), a restoration of temperate wetlands meeting in Sheffield, and of course, no trip would be complete without having your car and personal possessions stolen allowing a transcendence beyond the material plane for which Old England is famous.

Meanwhile, back on the Northern Tablelands of New South Wales, Kevin Theodore and Delny Britton have commenced on the final season of data collection for the three year seed bank project. Geoff Smith is also in the middle of a frantic season of data collecting, praying for rain one week and not too much the next. Dorothy Bell continues to coax, cajole and bludgeon recalcitrant *Eleocharis* spp. seeds into germinating. Rob McCosker is completing his three year project on the Gingham watercourse in the lower Gwydir, and looks like being able to continue this work for several more years.

The Department of Botany welcomed two new lecturers this year: Jeremy Bruhl and Peter Clarke. Jeremy brings expertise on the systematics of Cyperaceae and Peter on the community and population biology of estuarine plants. We are also expecting some new blood in the new year. Greg Brereton and Margaret Brock organised a summer scholarship for work on the Macquarie marshes. This was awarded to Rowan Hutson, a Natural Resources Honours student. The Department of Ecosystem Management have finalised the position in Aquatic Systems Management advertised earlier in the year. This will no doubt continue the Brain Drain to the North. It's the climate up here you know; the best thing since the climate in Old England (or South Wales for that matter).

QUEENSLAND

From: Paul Clayton

In haste, Paul Clayton managed to find time in the middle of a three week field trip to send us a few lines:

"Very little happening this way that is out of the ordinary. Most are winding down and heading away for Xmas. The ACTFR is organising a workshop for mid-Feb 1994 called "Tropical Floodplains Workshop: Wetlands, woodlands and agricultural land use" (NB. The title is still not firm but it will be something like that!). The workshop will focus on the Burdekin River floodplain south of Townsville.

Richard Pearson is in London for a white Christmas (probably a grey slushy one in London actually!). Main projects continuing up here: Stream Classification in the Wet Tropics, Dunder in streams around Sarina/Mackay (Yep, its back!), Off river water bodies in PNG for Ok Tedi Mining and various Birthday Creek catchment stuff."

VICTORIA

From: Gerry Closs

The new laboratory is currently being equipped. Roger Croome in conjunction with Russel Shiel and Garth Watson from MDFRC, is currently monitoring planktonic algae and zooplankton populations in Lake Mokoan. Roger has regularly been sighted sorting samples in his office, every so often running out shouting about the latest wonderful discovery he's made. Trude Hotzel's analysis of River Murray phytoplankton communities is proceeding apace, with the latest results to be reported at ASL in February.

Gerry Closs has also finally made it out into the local rivers and streams having shed some of his teaching load onto new lecturer, conservation geneticist Susan Lawler. A

longitudinal study of fish community structure along streams in north-east Victoria is about to begin. Initial forays into the Tooma River catchment in NSW showed that the backpack electrofisher purchased from the USA at great expense works, and that streams in the Tooma river area are in urgent need of some restorative work with many carrying very heavy sediment loads "and very few fish."

Mike Shirley is also about to start a CRC funded PhD under the supervision of Gerry Closs and Terry Hillman (MDFRC) studying the ecology of European perch/redfin. Initial work will focus on the distribution of redfin in relation to habitat variables, followed by detailed description of population biology and interactions with invertebrates and native fish.

TASMANIA

Inland Fisheries Commission

From: Paul Humphries

Much has happened since the last instalment, which by the way was many months out of date when it reached you. The instream flow project run by yours truly has gone through some major shake-ups re staff in the recent past. Firstly, Mary Mulcahy decided that teaching snot-nosed, spotty school kids was a preferable option to continuing working with me and so she has left IFC to further her interests in education. We wish her every success in her career change and feel reassured that she will do well, since there are few jobs in this world where you are actually paid to talk all day. Jan Barton recently returned from Africa, sporting certain tell-tale scars which she assured us were from a Masai initiation ceremony, filled Mary's vacancy for three months and spent most of her time up to her neck (0.5 m) in odonates and doing a lot of swearing (most of it directed at me). She has subsequently spent a short spell at the University and will soon be taking up a position at the Victorian EPA. Keep an eye on this one, she's going places! Jan was then replaced by one Martin 'Marty' Jack , late of the Uni. Zoo. Dept. who is very ably filling voids left, right and centre.

But the crunch really came when Dr Peter Tve been at IFC for nine years now and I need a new challenge' Davies decided to prise himself from the sticky seat of government and go off on his own. Half of his time he is now known as Dr Freshwater Systems and the other half as Dr Honorary Research Associate at the

University. After some initial butterflies, he is doing extremely well and getting heaps of work. It really is the end of an era, though, and IFC have lost an extremely energetic, imaginative, innovative researcher, who has given an enormous amount of himself to furthering knowledge of how freshwater systems and organisms function in response to anthropogenic disturbances. In collaboration with the ex-commish Rob Sloane, and continuing to the present day with Wayne Fulton, Peter brought the IFC to the forefront of freshwater environmental research and was active in many different areas, including endangered species, toxicity effects, environmental flows, the effects of pesticides, mining, logging and tourist developments and of course his work on trout. No doubt he will continue to move onward and upward and the good wishes of all of us go with him (provided he doesn't steal all the work!).

Other news: Chris Bobbi (currently a member of the HEC consultancy) has landed a job at the IFC researching aspects of the commercial eel fishery. Studies currently underway by the HEC boys are: an investigation into mercury in trout affected by HEC operations; comparison of the biota of Woods Lake now and 20 years ago by Peter Tyler; collaboration with the Centre for Water Research at UWA on a proposal to destratify Lake Burbury; and the nutrients/chlorophyll/phytoplankton lake survey continues, with sampling extending to west coast and south-west lakes, making a total of 40 lakes in the last three years. Stuart Chilcott and I recently carried out another survey of *Galaxiella pusilla* habitat in the state's north-west with a view to assessing the status of the species in Tasmania. The good news is that we found some wizz-bang populations (where were they when I needed them?!). A recovery plan is being written for *Galaxias fontanus* which includes several months at Club Med, Bicheno. Wayne Fulton has been appointed as commish for another term. Finally, a push into freshwater monitoring etc by the state Division of Water Resources has meant that a water quality person has been put on and an aquatic ecologist position will be formed soon. It's about time, and the hope from this quarter is that all groups will work together to maximise efficiency and minimise overlap.

University of Tasmania

From: Leon Barmuta

Zoology Department

Spring/summer has heralded a large increase in fieldwork with the completion of Belinda Robson's experiment in Mountain River and the start of Leon Barmuta and Dave Oldmeadow's stream channel work. After at least a fortnight of fine weather and low river levels we set out, to be greeted by large quantities of rain and even snow, causing flooding, consternation, swearing and delay. Nevertheless, with much fortitude the work was done and Mountain River is now restored to its former glory (with the removal of what seemed like several tonnes of artificial substrates) in time for the school holidays.

Martin Read's forays into more willow-ridden rivers around Tasmania has begun to generate some samples, which he is now enthusiastically sieving and sorting, after treading the hazardous path to his desk which was temporarily hidden by large piles of someone's used artificial substrates!

Plant Science

Graeme Lush, an Honours student supervised by Gustav Hallegraf has just completed his thesis on "The effects of toxic algae on fish and zooplankton" and has found that exudates of these algae are toxic to zooplankton and damage fish gills - so you don't even have to ingest the algae to be poisoned!

Other informants were uncontactable - one suspects the silly season is upon us.

Funding maxim #1: If it's outside the cell membrane, use a satellite.

NORTHERN TERRITORY

From: Michael Douglas

Michael Douglas took advantage of the dry season respite from field work to catch up on some sample sorting and brave a month down in sunny Melbourne. Impatient for the start of the wet season, he began an experiment using water tankers to fill up pools in the dry stream bed. Unfortunately, an unexpected and isolated downpour did the job far more effectively, and even filled up the pools which were supposed to remain dry. Oh well, better luck next year? In the mean time he's completing the first phase of a project using stable isotopes to investigate the sources of carbon in the Kaplaga streams. How many chironomids does it take to get 30 milligrams dry weight? Too many!!

N.T. Power and Water Authority

From: Simon Townsend

A new national park, centred in the West Macdonell Ranges, has recently been gazetted in the Alice Springs area. As part of a more general inventorial study, the Conservation Commission of the Northern Territory has commissioned Jenny Davis, from Murdoch University, to examine the macroinvertebrate fauna of permanent pools in the new park. A field trip in September surveyed five sites: Ormiston Gorge, Glen Helen, Redbank, Ellery Big Hole and Serpentine Gorge. Jenny was joined by Michael Lawton from Water Resources Division (NT Power and Water Authority) who examined the physico-chemical characteristics of the waterbodies. A second field trip is planned for February 1994.

The success of the Rum Jungle rehabilitation project continues to be assessed by ANSTO. Sydney staff members R. Jeffries, J. Ferris, and S. Jackson escaped the southern winter this year and headed north to the Top End dry season. They investigated the macroinvertebrates, fish and algae in streams both affected and unaffected by the Rum Jungle mine site.

A committee has been established, chaired by Kevin Boland (Water Resources Division) to co-ordinate Northern Territory "Monitoring River Health" submissions to the C.E.P.A. The committee has representatives from the NT Museum, Dept. of Mines and Energy, Office of the Supervising Scientist, NT Power and Water

Authority, Conservation Commission of the Northern Territory and the Northern Territory University. The committee will ensure a co-ordinated approach to "Monitoring River Health" project. Funding for five projects is currently being sought.

Office of the Supervising Scientist

From: Peter Dostine

OSS attendees enjoyed the recent conference on "The use of biota to do something or other". Congratulations to the conference organisers. The post conference workshop on the OSS monitoring program provided valuable criticism - thanks to the many participants. Post conference visitors to ARRRI included Dr John Wright of the Institute of Freshwater Ecology, Dorset, England (and father of RIVPACS). John was hosted by PAWA staff for the first segment of his Top End stay. Whilst in Jabiru, John made a valiant effort to be photographed on every scenic landmark, as well provide some very useful comment on our monitoring program.

Early November saw a visit to ARRRI by odonatologist Dr Tony Watson (CSIRO ANIC) and John Hawking (MDFRC) on a mission to collect and rear the larvae of all Territory odonate species. Only a dozen of the hundred or so resident species are still to be associated with the adult form. Anyone out there with known larvae of *Hemicordulia kallista, Zyxomma petiolatum* or *Camacinia othello* please step forward now! Peter Dostine will be spending a week in early December on the trail of other recalcitrants (touchy word) at Nhulunbuy in east Arnhem Land.

Vince Brown, eco-toxicologist and former deputy-director of ARRRI, has now returned to the UK to reaquaint himself with his retirement plans after a short contract with OSS. We wish him all the best.

Environment Division, NT Department of Mines and Energy

From: Barry Noller

The Environment Division (formerly Mines Environment Directorate) of the Department of Mines and Energy was formed in 1990 through the amalgamation of the Alligator Rivers Region and the Environmental Protection Branch of the Mines Division which has responsibility for non-uranium mining environmental control.

Since 1990 investigations of an environmental nature have been encouraged and have led to improved environmental control at mine sites. A general procedure based on ICP-MS has been applied to screen trace elements in waste waters at all mine sites in the Northern Territory that can then be compared with naturally occurring levels in surface and groundwaters. Characterisation of run-off from waste rock is also included as this has been found to be a very important feature of run-off associated with acid mine drainage.

Case studies have been undertaken on wetland areas which have been generated at most mine sites in the Top End via pit dewatering to remove excess water. Such wetlands have provided fortuitous retention of heavy metals and arsenic in the dewatering. Constructed and enhanced wetland areas are also being used and investigated further for filtration of mine dewatering at Woodcutters mine near Darwin and at Ranger (for uranium retention). Some controlled studies on wetlands are also in progress.

Bio-monitoring has not had a very high profile with mine site waste water monitoring in the Top End due to the general lack of taxonomic information about invertebrate species in the various rivers and reliable procedures which can be used for control purposes over short time frames. Dilution criteria have been applied at Pine Creek to control waste water release. The uptake of constituents in the released water by species from the aquatic system at Copperfield Creek, nearby Pine Creek and also taken by Aboriginal people as diet items, have recently been assessed. Trace element levels were examined in various organs of the freshwater mussel (*Velesunio angasi*) and fish (Spangled grunter). The data for the aquatic biota reflected levels of trace elements derived from local mineralisation and not uptake via water releases.

Another study on freshwater mussels from Magela Creek, near Ranger, has involved the application of Mossbauer spectroscopy, involving Drs John Webb and Dave Macey and others at Murdoch University, to examine the chemical nature of the iron deposits associated with granules in these mussels. These deposits are accompanied by relatively large quantities of radionuclides. The nature of iron in the freshwater mussel, which is present at high concentration and undergoes a partial biotic transformation, had not been previously studied.

PAPUA NEW GUINEA

Correspondent: Ian Roderick, Environment Department, Ok Tedi Mining Limited, P.O.Box 1, Tabubil, Western Province, P.N.G.

The past couple of months have been remarkably dry in the Western Province region. Many blocked valley lagoons and floodplains along the Fly and Strickland Rivers have dried up, as have a number of tie channels which connect the oxbow lakes with the river. At one point the river level at the measuring station reached a low of approximately 0.8 metre, but generally it has remained steady at about 2 metres for the best part of 2 months. Recently the level rose to over 7 metres (including a rise of 4 metres over a period of 24 hours after 1 decent nights rain in the upper Fly river catchment), but that didn't last long and it's back at 2 metres again. This situation contrasts markedly to earlier in the year when the level averaged about 10 metres for several weeks. The navigable river level for most of the ships is around 3.5 to 4 metres, so there has been little activity on the shipping scene. This has resulted in food supplies in Tabubil's supermarket running quite low, the bakery closing for a week because it ran out of flour and several occasions when beer supplies in the bottle shop were exhausted. Not only that, the wine club's shipment of wine for the next meeting has been stranded in Townsville for several weeks.

The low river levels have also had a marked effect on our sampling program with several of our regular sampling sites now being bone dry, which makes setting nets a bit tricky. Sampling in the river is still possible and a noticeable change in the riverine fish fauna is evident, with species more commonly inhabiting the off river water bodies having temporarily migrated into the river channel. We hope that the dry spell will be over soon, but the prediction is for another couple of months of low rainfall before things get back to normal again (i.e. a good downpour almost everyday). Anyone know any good rain dances?

The Biology section is once again up to strength with the recent arrival of Charles Tenakanai and Monica Rau. Charles has now been introduced to the off river water body sampling program (and dare I say it, to the joys of *Nematalosa*!) and will shortly experience sampling in the Fly river estuary. Monica has only just arrived on site and is still settling in. We hope that her botanical expertise will be put to good use shortly.

The shadow of the Annual report is looming large, and as I mentioned in the previous report will be our main focus for the next few months. Hopefully this will not be too traumatic an affair, although I envisage that there will be a few late nights spent hunched over the computer with blood-shot eyes and weary brain cells somewhere down the track.

WESTERN AUSTRALIA

Edith Cowan University

From: Mark Lund

Things have been extremely hectic here over the last few weeks, what with the end of semester and mountain loads of marking. Despite this, other more exciting things have been happening. The university played host to a 'Seminar on the impact and control of feral animals in the South West of W.A.' organised by the Conservation Council of W.A.. As well as being involved in the organisation, Pierre Horriblewitz also presented a talk on 'Translocated Aquatic Species'. Besides delivering an interesting talk (crawl crawl) he entertained with his flambouyant dress sense (or lack of it) and his tree branch pointer. The seminar was a great success attracting nearly 200 participants from all areas, with feral aqautic organisms getting a reasonable mention. Pierre and his assistant Kim Richardson also coauthored a paper that Pierre presented at the Water Authority (see Shirley's comments). The event managed cause enough sensation to make life interesting again and the ripples of which I am sure will continue to be felt further down the line.

Darren Ryder managed to submit his honours thesis (on decay/decomposition of Baumea and Typha) despite some weak excuses about life threatening illnesses. Darren will be doing some work for Pierre and is hoping to get a Ph.D. scholarship for next year.

My own work has included a poster at the feral animal seminar on Gambusia. I am currently writing a report on a waste minimisation and recycling study of the university that myself and a collegue completed recently (a small side interest). Kerry Trayler, Jane Latchford and myself visited Rottnest to work on the conference activities, details soon.

Murdoch University

From: Kerry Trayler

Heaps of news from Murdoch! This is either because this is an incredibly happening university full of enthusiastic, eager little limnologists OR because we just haven't written anything for a while.

In September, fresh from Canberra where she attended the CRC sponsored meeting on water quality assessment and the ARRRI workshop, the intrepid Dr Davis travelled to Alice Springs where she spent a week sampling the aquatic fauna of the gorges of the West MacDonnell ranges on the National Estate project in conjunction with the Conservation Commission of the Northern Territory. Jenny intends to continue her work in the MacDonnell ranges as part of her study leave in the first half of next year.

The wetlands group has a new, albeit temporary, member. Jeff Mengler, a biology and general sciences teacher from a local high school was awarded the "Teacher in Industry Access Scheme" and has joined us for 10 weeks. The scheme allows teachers to work in their related specialist field and enables them to access experiences, ideas and resources for personal and professional development. Apart from that, life goes on at its usual incredible pace in this group. Poranee Utayopus has been trying to sort out the secrets of keeping gravid Gambusia alive in the lab, Lorna Charlton has returned from another long and eventful trip to Millstream and Declan Morgan pops in from time to time to remind us that he is still alive and "avon-a-good time". Honours student, Phil Pappas, has been putting a few PhD students to shame by working evenings and weekends. He and Faye Cheal have recently been seen swapping secrets on Greek cooking home style. Both Faye and Erica Fairhurst are busy, busy, busy with rapidly approaching deadlines on their respective projects. Jane Latchford and Kerry Trayler have moved out of the wetlands lab and are now happily inhabiting the new remodelled and AIRCONDITIONED former wind tunnel at Murdoch. Kerry has chained herself to her desk and refuses to move again, having done so five times in the last eighteen months. Their departure from the lab resulted in a somewhat frantic diffusion of other members of the group, who rapidly filled any space that existed in case the powers that be decided there was room for more people.

Arthur McComb has been reappointed Chair of the National Party and Nature Conservation Authority (NPNCA) for a further two years. Of the 15 members of the Authority, four are ex-officio CALM staff, and of the others three remain from the previous Authority.

The Nutrient Analysis Laboratory (NAL) has just received a grant from the Water Authority of Western Australia (WAWA) for work on sediment nutrient release in Perth Coastal Waters. This work, combined with contributions from the Scientific Services Branch of WAWA and Environmental Sciences and Engineering Pty Ltd., is part of the Perth Coastal Water Study dealing with nutrient effects from wastewater discharge. The work will take place over the next year and follows on from studies previously carried out by NAL in the Cockburn Sound, which were supported by CSBP. The laboratory is about to undertake the complex process of NATA registration. This will allow the laboratory to join the nationally recognised network of analytical laboratories and, if necessary, to join the commercial sector. As always, within the lab itself, Celeste Wilson, Krysztof Wienczugow and Geoff Bastyan are always busy. At the moment of this going to press, Celeste was completing the analyses of the very last Peel Inlet chlorophyll sample and will soon finish both her tissue culture work with the Plant group in Biological Science and the oxygen electrode work at UWA in association with John Ferris. Next year Celeste will be back full time with the NAL.

Congratulations to Jane Chambers and Eric Paling on the birth of their second daughter, Katie Elspeth, who was born at 6.00 am. on Friday, 15th October. While Eric is resting, Jane and Nicola Fletcher have begun work on a National Landcare project aimed at improving water quality of the Peel drains through modification and the use of wetland filters.

Not to be left out, the Fish group are busy too. They have just started work on a new project looking at the biology of Black Bream and King George Whiting, and the ecology of fish communities in the Hardy Inlet (Augusta), Leschenault Estuary (Bunbury) and at Moore River. The project, co-ordinated by Glenn Hyndes and Margaret Plattell will involve three new honours students. In addition, Gavin Sarre has begun a PhD examining the biology and ecology of Black Bream in the Swan River.

Water Authority of W.A.

From: Shirley Balla

Linda Moore has received her PhD on benthic microbialites (stromatolites) and is making a small number of mostly typographical corrections. It will be published in its entirety in the near future in the journal Fascies. Congratulations Linda.

Pierre Horwitz and Kim Richardson from Edith Cowan University recently gave a stimulating seminar at the Environmental Protection Authority as part of the Wetlands Seminar Series that has been running for over a year. As one might expect, Pierre provoked a spirited and interesting discussion among the audience which spilled over into lunch and coffee breaks for days afterwards all over Perth. Thanks a lot, Pierre.

Alan Hill and Andrew DelMarco at the Water Authority have finally assembled a comprehensive set of maps of wetlands on the Swan Coastal Plain at 1:25,000. This project was initiated to assist the Water Authority and the Environmental Protection Authority in identifying the extent of the wetland resource for management purposes. They have identified over 9,000 wetlands between Wedge Island and Mandurah based on the mapping of the V & C Semeniuk Research Group. Obviously there are considerable incidental benefits, especially since 50m and 100m buffer zones are marked around the wetlands and each wetland has a number (and each tributary on each river has a number - its amazing they can still form coherent sentences). In addition, wetlands which are part of the conservation estate are marked and the Environmental Protection Authority's wetland management categories are identified for each wetland. Anyone interested in obtaining an order form for these maps should phone the Reprographics Centre at the Water Authority of WA on (09) 420 2605. Alternatively, write the Reprographics Centre, Land Information Branch, Water Authority of WA, 629 Newcastle Street, Leederville, WA 6007. I should note that after completing this enormous task, Andrew fled to Europe for a brief period and Alan changed jobs. There are moves afoot to map the wetlands on the rest of south-western WA, perhaps using the vegetation and surrounding land use to generate management categories. This is likely to be a huge task, mainly because its much wetter than the Swan Coastal Plain. I suspect that Andrew may be forced to leave the country again to preserve his sanity.

P.S. Apologies to other Western Australian aquatic groups that Mark Lund unfortunately didn't have time to contact.

AUSTRALIAN CAPITAL TERRITORY

Australian National University

From: Ralph Ogden

John Trueman has just finished a Ph.D. at the Division of Botany and Zoology entitled "Toward a phylogeny of Odonata" which covers a wide range of topics including a new model for the evolutionary origin of insect wings and new procedures for cladistic analysis. He writes: "the vaguely limnological aspects include (i) reports of new sites for the rare, endangered (IUCN Red Data Book) zygopteran *Hemiphlebia mirabilis*, (ii) some descriptions of dragonfly eggs, (iii) new data on the second instar larvae, chromosome complement, sperm morphology and other interesting features of some Australian species, (iv) two major cladistic analyses. The first of these places extant Odonata in relation to the extinct suborders and other odonatoid groups, confirming the paraphyletic status of Zygoptera. The second fails to confirm, in a statistically acceptable fashion, whether *H. mirabilis* is indeed sister to the remainder of the modern order, or whether it can be retained in Zygoptera only by sinking some Permian subordinal names". A number of papers have been produced or are in prep from his thesis. John is currently working with Peter Cranston at the CSIRO Division of Entomology.

Patrick DeDeckker is continuing his research into the late Quaternary history of a number of lakes and former lakes. His current focus is the dating of significant events that have been identified in the (sub)fossil record on the continent and in the Gulf of Carpentaria. For example, previous palaeolimnological work by Patrick and others has led to the recognition of both significantly wetter and drier conditions in southeast Australia in the last 30000 years. A precise chronology of the events leading up to the conditions we are experiencing today will provide insight into the climatic mechanisms involved. Patrick is also studying the chemistry of ostracod shells for palaeoenvironmental purposes.

Lynda Taylor, a student in Geology Department, is studying the long-term hydrologic history of lakes Hindmarsh and Albacutya in western Victoria by examination of the micro-faunal assemblages in the sediments. This project evolved from controversy surrounding the perceived impacts of the development of impoundments, diversion structures and the Wimmera/Mallee stock system between 1840 and 1946. Current water use practices involving the Wimmera River are believed to have altered the hydrologic balances of Lakes Hindmarsh and Albacutya. Lynda is comparing the current hydrological conditions of these lakes with conditions in recent geological time, as well as conducting a limnological survey to place them in a regional context.

Finally, I am a student in the Deptartment of Biogeography and Geomorphology (with the support and sound advice of people at the Murray-Darling Freshwater Research Centre), investigating the broad-scale impacts of river regulation and farming on upper Murray River and lower Ovens River billabongs. The study entails comparisons of the limnology of sites with differing impacts and an examination of microfauna in the sediment column of selected sites for changes through time. Cladocera remains are being used to provide historical information, and results so far indicate a regional decline in aquatic vegetation at around the time of the arrival of Europeans.

Bureau of Resource Sciences

From: Michele Barson

Richard Tilzey is still spending the bulk of his time wrestling with marine fisheries and is currently putting the finishing touches to a major review of the South East Trawl Fishery. There is no truth in the rumour that he is suffering from brine damage. He is maintaining a tenuous toe in the freshwater habitat via his membership on the Murray-Darling Basin Commission's Fish Management Advisory Committee. This Committee recently (November 1993) convened a fisheries workshop at Albury to discuss findings from MDBC's Natural Resources Management Strategy funded projects and their significance to water management practices in the Basin. The several significant results will be summarised in a forthcoming report.

Gina Newton reports that completion of her Ph D "Zooplankton ecology in relation to the hydrological cycles of a salt wedge estuary" (Hopkins River near Warrnambool) is imminent. She wonders whether many ASL members have an

interest in estuaries. Michele is finalising a paper on growing saltbush on salinised soils in the MDB (also funded by the Natural Resources Management Strategy) and hopes to start a wetlands paper for the ASL conference soon. She's dusted off her snorkelling gear and hopes to see you all on Rottnest.

No news received from colleagues at the University of Canberra. Undoubtedly they are all recovering from the recent opening of the CRC for Freshwater Ecology.

SOUTH AUSTRALIA

Botany Department

From: Kerri Muller

Congratulations to Justin Brookes (who most of you don't know as he considers hiking in New Zealand higher priority than ASL) on his fantasic Honours result; 1st Class and to top it off he and myself were joint recipients of the prestigous John Bagot Medal for top Botany Honours. So aren't we smarty pants!

Marcus Brownlow continues to unravel the mysteries of how water regime influences vegetation distribution at Bool Lagoon. He's writing up at the moment and by all accounts, having a great time of it. Both Marcus and Justin have had papers accepted to AJMFR, so stay tuned. Anthony K. is still cruising with his flow cytometer and is getting some good results; he's been able to separate individual algae species from mixed cultures. The real test will be this summer when he tackles field samples. Marcus Cooling's *Villarsia* plants are growing so fast that he is taking all meals in the pond, video camera and stop watch in hand. Should be an exciting talk at Rottnest (provided your into petiole extension, Cor!). Michelle Bald is about 3 months into her Honours; investigating the effects of nutrient addition, water depth and harvesting on resource allocation in *Triglochin procerum*. Good luck for the rest of the year.

And finally the magnificent Ganf himself. He's been flitting off around the country giving his advice to practically anyone who'll listen. Last week it was the "Smelter in the Park" workshop at Portland Aluminium Smelter and this week its Hawkesbury to advise on management of blue-green algae in the River Murray. That's all for now see you at Rottnest.

Zoology Department

River Murray Lab.
From: Adrienne and Stuart

Stuart Blanch, Adrienne Burns, and Lorenzo Vilizzi have been unsuccessful in holding back the floodwaters of the River Murray. Stuart has been getting to know the ins and outs of the River Murray hydraulic model developed for South Australian Engineering and Water Supply Department to predict flood levels. He is currently denuding small pockets of wetland vegetation for future experiments.

Adrienne has finally managed to keep algal settlement experiments afloat in a patch of remnant wetland vegetation near Murray Bridge, with help from the watchful eye of an interested shack owner to ward off any problems.

Flinders Stuff
From: Andrew Boulton

Meanwhile, the Flinders Ranges streams continue to be hammered by researchers, drought and flash floods - the three big disturbances. But wait, we may have found a fourth. Leanne Piller has been working on the effects of massive numbers of tadpoles on the algae in several springs. As the water recedes, numbers rise and it seems a great way of cleaning substrata of slimy green algae. She and Peter Schultz were forced to sleep next to the field experiment for a week to stop hungry foxes stealing the plastic from below the artificial ponds or chewing the nitrate drips.

Sandra Grinter completed her Honours, examining breakdown rates of red-gum leaves in nitrate-rich and poor sections of three streams in the Flinders Ranges. It appears that nitrate enhances breakdown but slightly higher water temperatures in the nitrate-rich sources may also have played a part. Sam Wade continues to gather data on hydrologic exchange and Andrew Boulton has completed his sets of samples of water chemistry, algae, and surface and hypo-bugs from lots of different patches in lots of different streams.

Last week, the Flinders were subject to a massive assault by a multidisciplinary and motley crew of stream ecologists. Stuart Fisher, Nancy Grimm and Jay Jones (Arizona State Uni) were examining metabolism (P:R ratios), subsurface flow paths, methanogenesis and other chemical excitement, Maria Rieradevall (Barcelona) sampled chironomids and drift, Paul Boon (MDFRC), looking resplendant in clean white shoes (for a while) was estimating nitrification in the gravel bars using inhibitors and Sam Lake (Monash) was finding out what was "running the show" and sampling the entire ecosystem with his unique form of remote sensing. The rest of the party was accompanied by old hands Pedro Schultz, Sandra Grinter and Sam Wade while the kids (Ian and Orion) sampled kangaroos and emus. A great trip rivalling the convoy of the Horn Expedition nearly a century ago (without the camels), and we even "caught" a flash flood the first night and a wind and thunderstorm on the second.

LETTERS TO THE EDITOR

The Editor, ASL Newsletter
Dear Sir,
In the latest issue of Newsletter (31 no.2) under the heading of "here at last" the then editors announce that the next issue is here at last. I think that the present issue is here at last. In any case it will be difficult for the next editors to clarify the matter because the next issue will have to refer to the preceeding issue which has already been described as the next. Whatever happens, I trust that neither the forthcoming issue nor any thereafter will turn out to be the last.
Yours sincerely

Peter Tyler.

60 MINUTES

ASL executive teleconference. 26 Nov 1993

Present: B.Robson, M.Brock, M.Hart, L.Barmuta, R.Marchant, G.Closs, M.Douglas; apologies from P.Boon, P.Clayton and S.Bunn.

1. Financial report (from M.Hart): At the end of October $2700 remained in the working account. Since then approximately $5500 in annual subscriptions has been received. $37000 remains in the ANZ trust account. Banking details have been sent to J.Davis to enable the Perth conference finances to go directly through the society's existing account. A bill from FASTS for the annual dues of $1650 has been received. About 15 applications for membership have been received in the last few months.

2. ASL political agenda: L.Barmuta summarised the current position. The society has initiated 3 actions: the compilation of a list of experts on various limnological issues; the compilation of a list of those willing to keep a watching brief on such issues; and the publication of a list of limnological issues on which the ASL should have a policy (see last newsletter). Members from North Qld have responded to the suggested list (see p.21 of the last newsletter). SA members held some discussion of these issues; they also felt that the president of the society should take a higher profile and be prepared to answer questions on such issues. NT members also discussed the published list and came up with some priority issues: point source discharges, loss of wetlands, biodiversity issues, introductions of exotics. No additional comments have been received from other states. After some discussion it was suggested that a flyer be prepared for the next newsletter that would request members to indicate: what "key" committees they were on; what issues they would be willing to act as experts on; what issues they would be prepared to keep watching briefs on. The flyers would be sent to the secretary for collation.

3. Barung Land Care: R.Marchant informed the executive that $200 had been sent to this group as decided at the last meeting. He had asked Barung for a report on the outcomes of the workshop that this money had partially
sponsored, but had yet to receive one. This matter will be followed up. A similar request will also be made to P.DeDeckker, who received sponsorship from the society for a palaeolimnological conference held earlier this year.

4. Newsletter editorship: This has now passed to A.Boulton and colleagues at the University of Adelaide. Discussion of the viabilty of this arrangement will need to take place at the next AGM.

5. Office bearers: The treasurer indicated that she would be willing to continue for one final year. It was suggested that an "apprentice" treasurer be sought who would learn the ropes over the next year and then take over the position. When the current treasurer retires the current secretary will also probably retire. Thus two volunteers will be needed.

6. Correspondence with the Ecological Society of Australia (ESA): L.Barmuta has written and spoken to the ESA about the problems of finding members to edit newsletters and act as treasurers of scientific societies. There are apparently a plethora of desk-top publishing outfits (especially in Canberra) that will do all the routine chores associated with a newsletter e.g. receiving copy, setting out text, arranging for printing, postage of issues. Neither the ASL nor the ESA know of commercial organisations that would handle the financial and membership aspects of a society. L.Barmuta will continue his discussions with the ESA and other societies about these matters.

7. Requests for financial support: R.Marchant reported that two requests had been received, copies of which had been sent to members of the executive. The two organisations involved were: the International Commission for Zoological Nomenclature (ICZN) and the organisers of the Australian Biology Olympiad Bursaries. As neither of these groups was involved with primarily limnological activities there was some discussion as to whether the ASL should support worthy groups, such as these, that have

only an indirect connection with most of the members of the ASL. It was decided to send a donation of $150 to both groups on the understanding that donations in the future could not be guaranteed and would be determined as the executive saw fit at the time. G.Closs will contact one of the organisers of the Biology Olympiad Bursaries to confirm that the emphasis of the contest is general biology and not just specialised aspects e.g cell biology. M.Hart will prepare a budget for the society's annual donations, which will be presented at the next AGM.

8. Student prize: Ann Grant (editor of AJMFR) has offerred to donate a one-year subscription to this journal as a prize at the annual congress. The executive decided that the donation could best be used as the award for the best honours presentation.

9. ASL book: L.Barmuta has received no feed back on the desirability of producing a book on Australian Limnology to coincide with a SIL conference that might be held in Australia in 2001. It was suggested that a special issue of AJMFR might be a more appropriate and appreciated response if this conference was to be held in Australia.

10. Freshwater Imperative: I.Campbell outlined details of this US initiative in the last newsletter. The executive decided more details should be sought from IC for a discussion of the issue at the next AGM.

R.Marchant, Secretary

CONFERENCE CAPERS

Forthcoming Workshops and Conferences

A Summer School in *Freshwater Microbiota* will be held at La Trobe University - Albury-Wodonga Campus from 17 - 21 January 1994. The Summer School has been organised by La Trobe University, Deakin University and the MDFRC. Contact Roger Croome on (060) 556 340 by 15 November. You're running out of time!

12th International Symposium on Chironomidae (22-26 January, 1994) will be held at the CSIRO in Canberra. Contact: Dr Peter Cranston (06) 246 4282 Fax: (06) 256 4000.

The XIth Conference of the Australasian Society for Phycology and Aquatic Biology will be held on Rottnest Island (Oh Damn!), Western Australia on Thursday 3 and Friday 4 February 1994. Contact: Dr John Huisman, School of Biological and Environmental Sciences, Murdoch University, Murdoch, WA 6150.

The Sixth Taxonomic Workshop will be held at MDFRC from 15 - 17 February 1994. The Workshop will be on Oligochaeta and Chironomidae. Contact John Hawking on (060) 43 1002 for additional information.

Disinfection of Potable water: the total spectrum, 13-18 March 1994, Kruger National Park, South Africa. Contact: Disinfection Conference (not STDs) Rand Water Board, PO Box 1127, Johannesburg 2000, South Africa; Fax: +27 11 682-0444; Ph: +27 11 682 0911.

The 10th Symposium of the International Association of Astacology, IAAX, will be held in Adelaide from 10 - 15 April 1994. A rundown of the IAAX was published in the last newsletter. Contact: Dr Mike Geddes Ph: (08) 303 5934 Fax: (08) 303 4364.

The VIIth International Rotifer Symposium will be held at Mikolajki (Poland) in June 1994. For details contact Russ Shiel at MDFRC.

International Conference on Tropical Limnology in commemoration of the 65th Ann. of the Ruttner-Thieneman Limnological Sunda Expedition, 4-8 July 1994, Salatiga, Central Java, Indonesia. Contact: Faculty of Science and Mathematics, Satya Wacana Christian University, JL. Diponegoro 52-60, Slatiga 50711, Indonesia; Fax: (0298) 81420 or Ph: (0298) 81362.

Water Conference (organised by some New Zealand engineers). 29 - 31 August 1994, at Waikato University, New Zealand. Contact: Water Conference 1994, PO Box 4168, Hamilton East, New Zealand or Fax: (07) 838 4058.

Ecological Society of Australia Meeting, Alice Springs 25-27 September 1994. Contact: Steve Morton, CSIRO, PO Box 2111, Alice Springs, NT 0871; Fax: (089) 52 9578.

The 1994 National Greening Australia Conference ***A Vision for A Greener City*** will be held in Fremantle, WA from 4 - 6 October 1994. Abstracts to be with the Conference Secretariat by 30 November. Contact Martine Scheltema (09) 481 2144.

ANNOUNCEMENTS

Appeal: Keep TFB Alive!

The international jounal, *Tropical Freshwater Biology*, was established in Nigeria in 1988 to assist in the wide dissemination of original research findings in tropical and sub-tropical countries around the world. Since its inception, only four issues have been published and currently it only has 8 subscribers.

We all know how expensive it is to publish these days and further, consider the unique difficulties confronting a developing country like Nigeria.

TFB strongly appeal for support in funding and advertising. The price of an issue is U.S. $25 and air postage is an additional U.S. $5. Please support TFB and keep limno publishing alive in Nigeria. Contact: Bill Williams, Department of Zoology, The Universityof Adelaide, Adelaide, S.A. 5005. Ph: (08) 303 5576 or Fax: (08) 303 4364.

Rotifer News
Russ Shiel (MDFRC)

A global newsletter presently edited by Russ Shiel at MDFRC covers all research areas relating to the Phylum Rotifera, e.g. aquaculture, biochemistry, biogeography, biomanipulation, ecology, neuropharmacology, physiology, population dynamics, taxonomy, plus a comprehensive bibliography with ca. 100 citations per issue. There are some 300 people on the mailing list, but only half a dozen in Australia...if you have any interest in rotifers (even fish food queries will be answered...), and have a spare $10 for 2 issues a year, contact Russ at MDFRC, P.O. Box 921 Albury, NSW 2640

AJMFR Special Issue on Plants and Wetland Processes
Marg Brock and Paul Boon

In the last Newsletter, we asked for contributions towards a proposed Special Issue in AJMFR on the botanical aspects of wetland processes. The closing date for manuscripts to be submitted to the journal was to be 30 November 1993, but as the Newsletter didn't see the light of day until early November, this time limit seems rather draconian now. We attempted to contact all researchers we thought would be interested in the topic, but if we missed you, now's the chance for your Nobel-prize winning paper. If you want more detail, and especially if you wish to contribute a manuscript to the Special Issue, contact either:

Margaret Brock, UNE Botany, on (067) 732578 (phone) or (067) 733283 (fax), or Paul Boon, MDFRC, on (060) 431002 (phone) or (060) 431626 (fax), as soon as possible.

So far we have 30+ expressions of interest.

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Please send details of publications, reports, etc., to Russ Shiel MDFRC, PO Box 921, Albury, NSW 2640.

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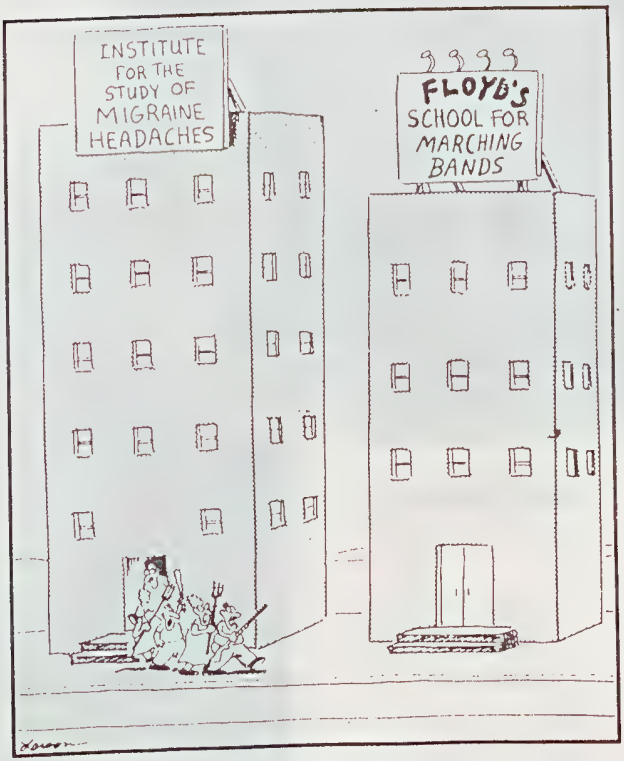
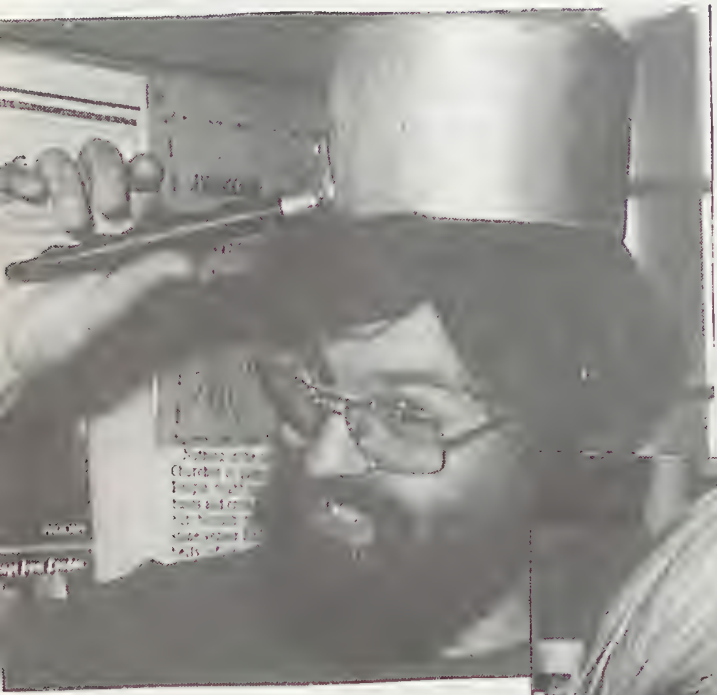


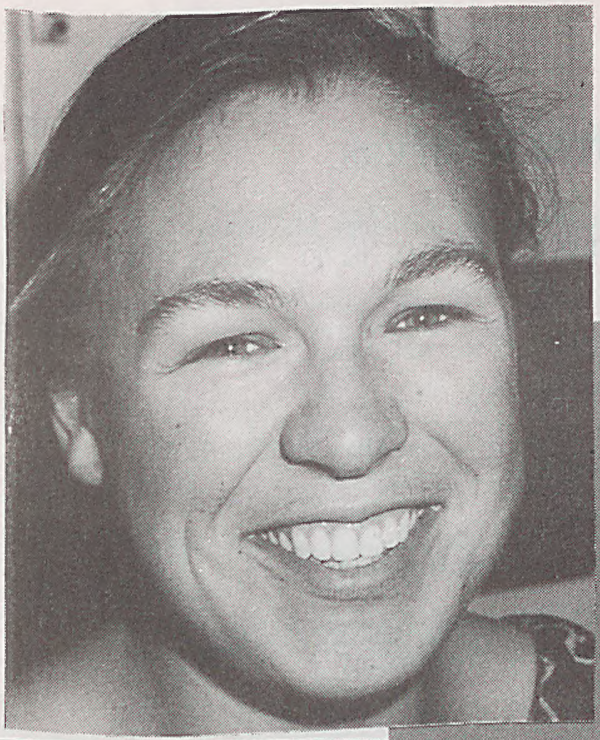
The dam bursts.

THE EDITORIAL COLLECTIVE



Andrew Boulton

Fran Sheldon



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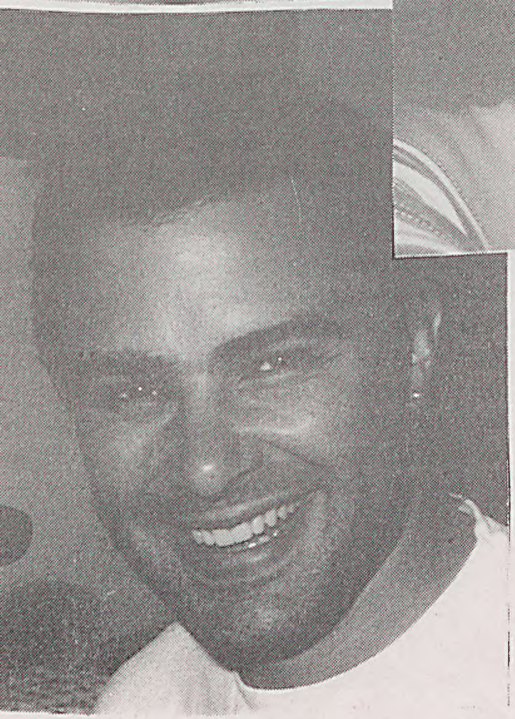
Adrienne Burns



Sam Wade

EXECUTIVE MEMBERS

President: Dr Leon Barmuta, Department of Zoology, University of Tasmania, GPO Box 252C, Hobart, TAS 7001 Ph: (002) 202 785 Fax: (002) 202 745.

Vice-President: Dr Paul Boon, MDFRC, Po Box 921, Albury, NSW 2640. Ph: (060) 43 1002 Fax: (060) 43 1626.

Immediate Past President: Dr Stuart Bunn, School of AES, Griffith University, Nathan, QLD 4111. Ph: (07) 875 7407 Fax: (07) 875 7459.

Secretary: Dr Richard Marchant, Museum of Victoria, 71 Victoria Cres., Abbotsford, VIC 3067. Ph: (03) 419 5200 Fax: (03) 416 0475.

Treasurer/ Membership Officer: Mrs Margaret Hart, 22 Netherby Ave., Mulgrave, VIC 3170. Ph: (03) 560 4406 Fax: (03) 560 4406.

Regional Executive Members: 1993-94

Dr Andrew Boulton, Dept of Zoology, The University of Adelaide, Adelaide SA 5005. Ph: (08) 303 5565 Fax: (08) 303 5817.

Mr Michael Douglas, CSIRO Wildlife and Rangelands, Darwin NT 0800. Ph: (089) 221 719 Fax: (089) 221 714.

Dr Gerry Closs, Division of Science, La Trobe University, Wodonga VIC 3690. Ph: (060) 556 572 Fax: (060) 556 570.

Dr Margaret Brock, Dept of Botany, University of New England, Armidale NSW 2350. Ph: (067) 732 578 Fax: (067) 733 283; email: MBROCK@METZ.UNE.EDU.AU.

Ms Belinda Robson, Zoology Dept., University of Tasmania, Hobart TAS 7000. Ph: (002) 202 592 Fax: (002) 202 745.

Dr Mark Lund, Edith Cowan University, Perth WA 6000. Ph: (09) 405 5644 Fax: (09) 405 5717; email: MLUND@COWAN.EDU.AU.

Dr Michelle Barson, Bureau of Rural Resources, Canberra ACT 2601. Ph: (06) 272 4347 Fax: (06) 272 4896; email: MBARSON@CANDELO.DPIE.GOV.AU.

Mr Paul Clayton, Australian Centre for Tropical Freshwater Research, James Cook University, Townsville QLD 4810. Ph: (077) 81 4262 Fax: (077) 81 5589.

Editorial Address: Stuart Blanch, Department of Zoology, University of Adelaide, SA 5005, Ph (08) 303 5576, Fax (08) 303 4364, email: SBLANCH@ZOOLOGY.ADELAIDE.EDU.AU.